



# Australian Bureau of Statistics

## 6265.0 - Underemployed Workers, Australia, Sep 2008

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## Summary

### Main Features

#### NOTES

#### ABOUT THIS PUBLICATION

Underemployed workers are defined as part-time workers who want, and are available for, more hours of work than they currently have, and full-time workers who worked part-time hours during the reference week for economic reasons. The number of underemployed workers are an important component of underutilised labour resources in the economy, along with the number of unemployed and some people with marginal attachment to the labour force.

This publication presents information about the characteristics of underemployed workers aged 15 years and over. For time series information on the number of underemployed workers, users are advised to use the quarterly Labour Force Survey estimates. Trend and seasonally adjusted estimates are released quarterly in [Australian Labour Market Statistics](#) (cat. no. 6105.0), tables 4.1 to 4.4.

The statistics in this publication were compiled from the Underemployed Workers Survey conducted throughout Australia in September 2008 as a supplement to the Australian Bureau of Statistics (ABS) monthly Labour Force Survey (LFS). A range of information is presented on underemployed workers including the number of hours usually worked, number of preferred hours, steps taken to find work with more hours and difficulties finding work with more hours.

#### CHANGES IN THIS ISSUE

The September 2008 Underemployed Workers Survey included changes to the questions used in previous surveys to identify part-time workers who preferred to work more hours and their availability to start work with more hours. This was to align the survey questions with the questions asked in the Labour Force Survey each quarter.

The changes to the questions have resulted in a break in series for the Underemployed Workers Survey and users need to exercise caution when comparing the characteristics of underemployed workers in this publication with previous issues. For further information see paragraphs 16 to 17 of the Explanatory Notes. Note that the underlying concept of underemployment has not changed.

## NOTES ABOUT THE ESTIMATES

Sample reductions in the Labour Force Survey, (see Information Paper: [Labour Force Survey Sample Design](#), Nov 2007 (Second edition) (cat. no. 6269.0)), resulted in the Underemployed Workers Survey sample being approximately one-third smaller than the sample size in September 2007.

## ROUNDING

As estimates have been rounded, discrepancies may occur between sums of the component items and totals.

## INQUIRIES

For further information about these and related statistics, contact the National Information and Referral Service on 1300 135 070 or Labour Market Section on Canberra (02) 6252 7206.

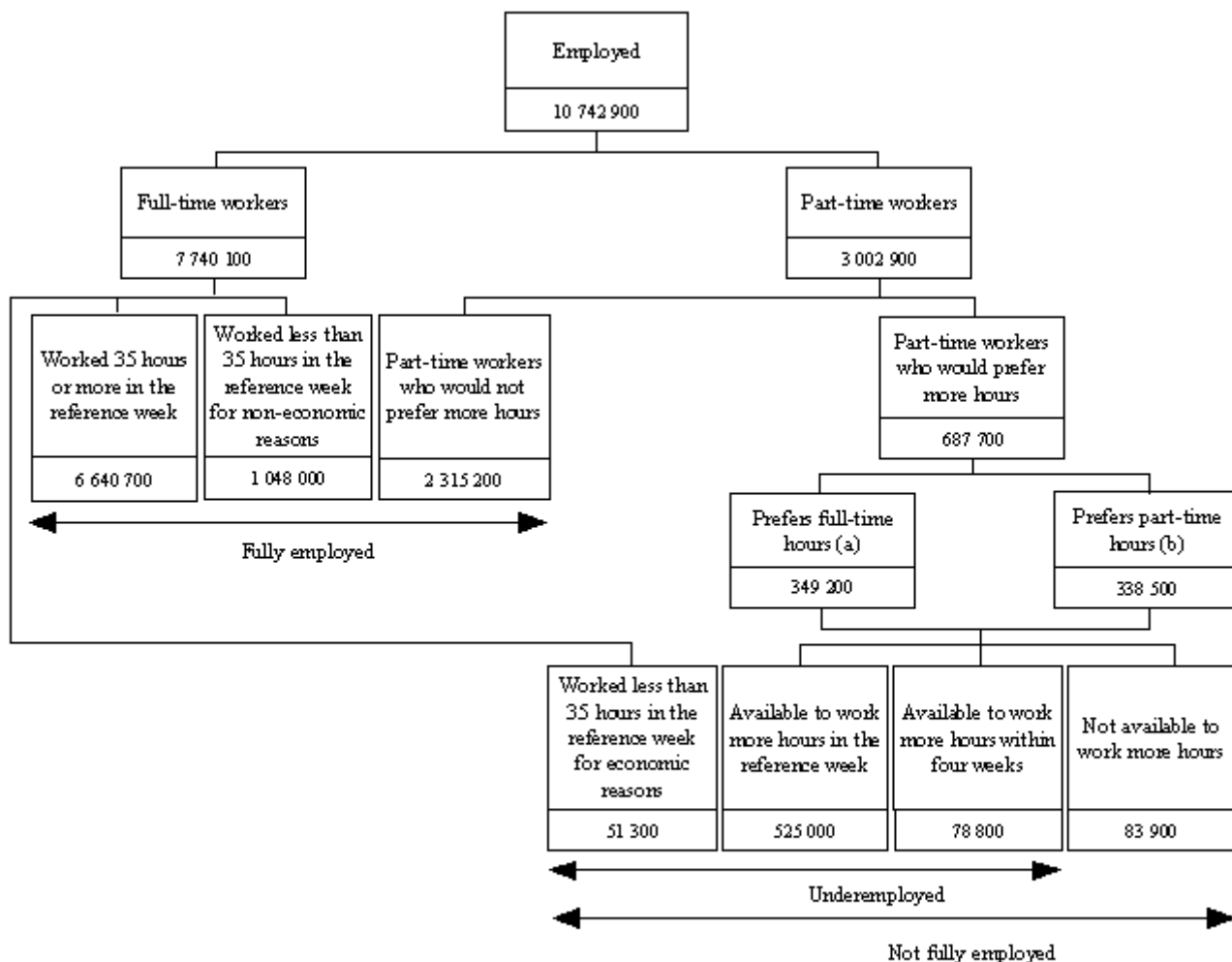
# Conceptual Framework

## CONCEPTUAL FRAMEWORK

### CONCEPTUAL FRAMEWORK

The ABS conceptual framework for underemployment separates employed people into two mutually exclusive groups:

- workers who are fully employed, comprising:
  - employed people who worked full-time during the reference week (includes people who usually work part-time)
  - employed people who usually work full-time but worked part-time in the reference week for non-economic reasons (including illness or injury, leave, holiday or flextime, and personal reasons)
  - part-time workers (usually work part-time and did so in the reference week) who would not prefer additional hours of work.
- workers who are not fully employed, comprising:
  - part-time workers who would prefer to work more hours
  - full-time workers who worked part-time in the reference week for economic reasons (such as being stood down or insufficient work being available).



- (a) Total number of hours preferred to work each week are 35 or more.  
 (b) Total number of hours preferred to work each week are between 1 to 34 hours.

The conceptual framework further defines workers who are underemployed, comprising:

- part-time workers who would prefer to work more hours and were available to start work with more hours, either in the reference week or in the four weeks following the survey
- full-time workers who worked part-time hours in the reference week for economic reasons (such as being stood down or insufficient work being available).

## Summary of Findings

### SUMMARY OF FINDINGS

#### OVERVIEW

There were 10.7 million employed people aged 15 years and over in September 2008. Of these:

- 10 million (93%) were fully employed
- 739,000 (7%) were not fully employed

- 655,100 (6%) were underemployed workers, of these:
  - 603,700 usually worked part-time but would prefer more hours and were available to start work with more hours either in the reference week, or in the four weeks following the interview
  - 51,300 usually worked full-time but worked part-time hours in the reference week due to economic reasons (being stood down, on short-time, or having insufficient work).

## **PART-TIME WORKERS WHO WOULD PREFER MORE HOURS**

In September 2008, there were 3 million part-time workers (2.1 million women and 861,800 men). There were 687,700 (23%) part-time workers who would prefer to work more hours, consisting of 447,100 women and 240,600 men.

Of the part-time workers who would prefer more hours:

- 33% were aged 15-24 years
- 51% would prefer to work full-time (65% of men and 43% of women)
- 603,700 were available for work with more hours (389,800 women and 213,900 men). Of these, 45% were looking for work with more hours
- 83,900 were not available for work with more hours. Of these, 11% were looking for work with more hours.

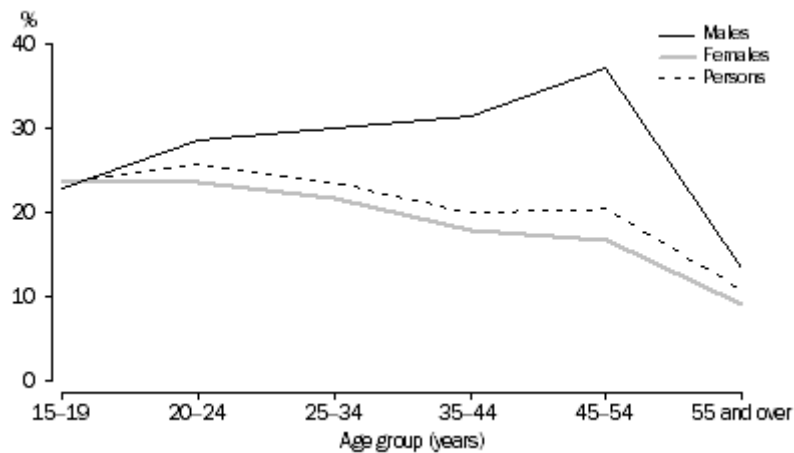
## **UNDEREMPLOYED PART-TIME WORKERS**

In September 2008 there were 603,700 underemployed part-time workers. These people comprise the majority (92%) of all underemployed workers.

Of the underemployed part-time workers:

- 65% were women
- 20% were aged 35-44 years and a further 19% were aged 15-19 years
- 21% usually worked 16-20 hours per week and 10% usually worked 1-5 hours per week
- 60% reported they would not prefer to change employer to work more hours (56% of men and 62% of women), 25% would prefer to change employer while the remaining 15% had no preference.

## **UNDEREMPLOYED PART-TIME WORKERS AS A PROPORTION OF PART-TIME WORKERS, Age by sex**



Part-time workers aged 20-24 years had the highest incidence of underemployment, with 26% of part-time workers in this age group underemployed. The proportion of part-time workers who were underemployed generally decreased with age.

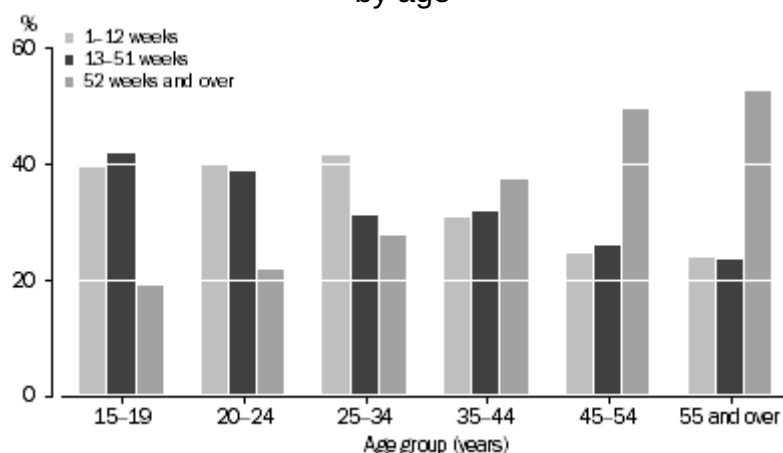
While there were more women underemployed part-time workers than men, the incidence of underemployment for part-time workers was higher for men (25%) than women (18%) and this was the case in almost all age groups. The largest percentage point difference was for those aged 45-54 years (37% for men and 17% for women) and 35-44 years (32% for men and 18% for women).

Underemployed part-time men were more likely to report that they would move intrastate if offered a suitable job (25%) than women (21%), whereas 16% of underemployed part-time men and 15% of women reported that they would move interstate if offered a suitable job.

There was a higher proportion of people who reported uncertainty about moving intrastate than interstate if offered a suitable job in September 2008 (13% of underemployed part-time workers might move or did not know if they would move intrastate, compared to 9.2% for interstate).

### Duration of current period of insufficient work

**UNDEREMPLOYED PART-TIME WORKERS**, Duration of current period of insufficient work by age



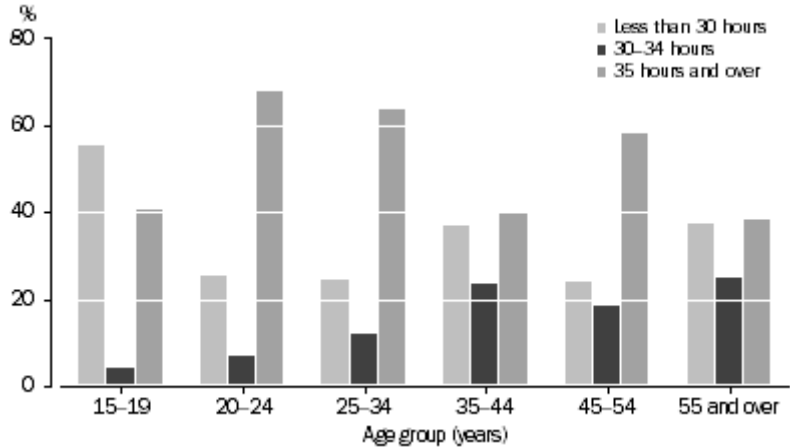
Older people generally had a longer period of duration of underemployment than younger people. For example, under one fifth (19%) of 15-19 year old underemployed part-time workers had experienced insufficient work for one year or more. In contrast, 50% of those

aged 45-54 years, and 53% of those aged 55 years and over had insufficient work for one year or more.

For those aged 15-19 years, the median duration of the current period of insufficient work for underemployed part-time workers was 20 weeks (17 weeks for men and 21 weeks for women). For those aged 25-34 years the median duration was 15 weeks and for those aged 55 years and over the median duration was 52 weeks. Overall, the median duration of the current period of insufficient work for underemployed part-time workers was 26 weeks.

**Preferred number of hours**

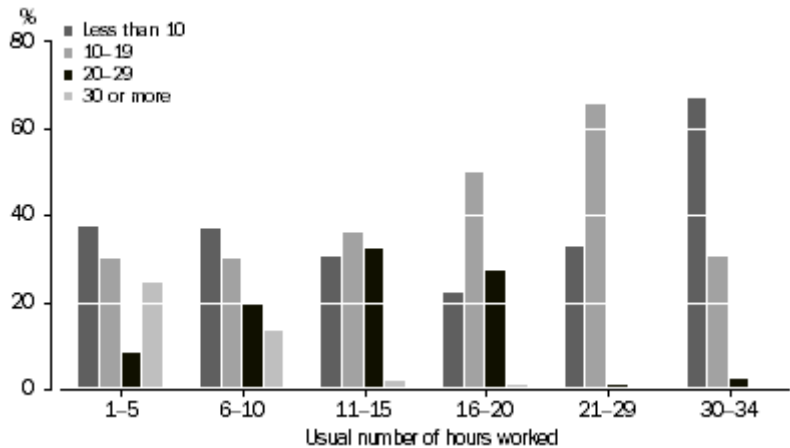
**UNDEREMPLOYED PART-TIME WORKERS, Preferred number of total hours by age**



Just over half (51%) of underemployed part-time workers would prefer to work a total of 35 hours or more per week. For those aged 20-24 years, 68% preferred a total of 35 hours or more per week, while for those aged 15-19 years, 55% preferred a total of less than 30 hours per week.

**Preferred number of extra hours**

**UNDEREMPLOYED PART-TIME WORKERS, Preferred number of extra hours by usual number of hours worked**



The number of extra hours preferred by part-time workers varied with the number of hours they usually worked. For example, just over three quarters (76%) of those who usually worked 1-5 hours a week preferred less than 30 extra hours. Of those who worked 16-20 hours a week, 50% preferred less than 10-19 hours a week. Of those who usually worked 20-29 hours a week, 32% preferred 11-16 extra hours a week and of those who worked

30-34 hours a week, 67% preferred to work less than 10 hours a week.

The mean preferred number of extra hours per week for underemployed part-time workers was 13.4 hours. Men preferred to work an average of 14.5 extra hours each week compared with women who preferred to work an average extra 12.8 hours. The mean preferred number of extra hours was lowest for people aged 15-19 years (12.4 hours), and highest for those aged 25-34 years (14.4 hours).

### **Looking for work with more hours**

Of the 603,700 underemployed part-time workers, 271,800 (45%) had looked for work with more hours at some time during the four weeks prior to the survey. Of the 389,800 underemployed part-time women, 43% were looking for work with more hours. By comparison, of the 213,900 underemployed part-time men, 49% were looking for work with more hours.

The most common step taken by underemployed part-time workers who had looked for work with more hours, was 'asked current employer for more work' (61%). This was followed by 'contacted prospective employers' (57%) and 'looked in newspapers' (52%). The largest percentage point differences between men and women were for 'contacted friends or relatives' (37% of men and 26% of women) and 'checked centrelink touchscreens' (12% of men and 6.4% of women).

The main difficulty in finding work most commonly reported by underemployed part-time workers who had looked for work with more hours, was 'no vacancies in line of work' (17%). This was followed by 'other difficulties' (15%), and 'unsuitable hours' and 'lacked necessary skills or education' (both 10%). The largest percentage point difference between men and women was for 'unsuitable hours' (6% of men and 13% of women).

Approximately 10% of underemployed part-time workers who had looked for work with more hours reported that they had 'no difficulties' in finding work with more hours.

### **UNDEREMPLOYED FULL-TIME WORKERS**

There were 7.7 million full-time workers in September 2008, accounting for 72% of all employed people. Approximately 1.1 million people (14%) worked less than 35 hours in the reference week. Less than 5 per cent (51,300) of these worked less than 35 hours in the reference week due to economic reasons, of which 80% were men.

## **About this Release**

Provides information on visible underemployment. Persons who worked less than 35 hours in the week prior to the survey who would have preferred to work more hours were asked about whether they were looking for work with more hours, available to start work with more hours, and their experience in looking for work with more hours. Other information includes, the duration of the current period of insufficient work, and the number of extra hours preferred. Estimates can be cross-classified by labour force demographics such as State, sex, age, marital status and birthplace.

# Explanatory Notes

## Explanatory Notes

### EXPLANATORY NOTES

#### INTRODUCTION

**1** The statistics in this publication were compiled from data collected in the Underemployed Workers Survey conducted throughout Australia in September 2008 as a supplement to the Australian Bureau of Statistics (ABS) monthly Labour Force Survey (LFS). Respondents to the monthly LFS who were within the scope of the supplementary survey were asked further questions.

**2** The publication Labour Force, Australia (cat. no. 6202.0) contains information about survey design, sample redesign, scope, coverage and population benchmarks relevant to the monthly LFS, which also apply to supplementary surveys. It also contains definitions of demographic and labour force characteristics, and information about telephone interviewing relevant to both the monthly LFS and supplementary surveys.

#### CONCEPTS, SOURCES AND METHODS

**3** The conceptual framework used in Australia's LFS aligns closely with the standards and guidelines set out in the Resolutions of the International Conference of Labour Statisticians. Descriptions of the underlying concepts and structure of Australia's labour force statistics, and the sources and methods used in compiling these estimates, are presented in Labour Statistics: Concepts, Sources and Methods (cat. no. 6102.0.55.001) which is available on the ABS web site <<https://www.abs.gov.au>> (Methods, Classifications, Concepts & Standards).

#### SCOPE

**4** The scope of the LFS is restricted to people aged 15 years and over and excludes the following people:

- members of the permanent defence forces
- certain diplomatic personnel of overseas governments, customarily excluded from the census and estimated populations
- overseas residents in Australia
- members of non-Australian defence forces (and their dependants).

**5** Students at boarding schools, patients in hospitals, residents of homes (e.g. retirement homes, homes for people with disabilities), and inmates of prisons are excluded from all supplementary surveys.

**6** This supplementary survey was conducted in both urban and rural areas in all states and territories, but excluded approximately 120,000 people living in very remote parts of

Australia who would otherwise have been within the scope of the survey. The exclusion of these people will have only a minor impact on any aggregate estimates that are produced for individual states and territories, except the Northern Territory where such people account for around 23% of the population.

## **COVERAGE**

**7** In the LFS, coverage rules are applied which aim to ensure that each person is associated with only one dwelling and hence has only one chance of selection in the survey. See Labour Force, Australia (cat. no. 6202.0) for more details.

## **SAMPLE SIZE**

**8** Supplementary surveys are not always conducted on the full LFS sample. Since August 1994 the sample for supplementary surveys has been restricted to no more than seven-eighths of the LFS sample.

**9** The LFS sample size in September 2008 was approximately one-third smaller than the sample size in September 2007. This is due to an 11% sample reduction that was implemented from November 2007 to June 2008 based on the 2006 sample design, and an additional 24% sample reduction implemented in July 2008. Detailed information about the sample reduction is provided in Information Paper: Labour Force Survey Sample Design, Nov 2007 (Second edition) (cat. no. 6269.0).

**10** The reduced sample will still be representative, with selections made across all parts of Australia.

**11** The initial sample for the September LFS consisted of 27,469 private dwelling households and special dwelling units. Of the 21,787 private dwelling households and special dwelling units that remained in the survey after sample loss (e.g. households selected in the survey which had no residents in scope for the LFS, vacant or derelict dwellings and dwellings under construction), approximately 20,631 or 94.7% were fully responding to the Underemployed Workers Survey. The number of completed interviews obtained from these private dwelling households and special dwelling units (after taking into account scope, coverage and subsampling exclusions) was 22,656.

## **RELIABILITY OF THE ESTIMATES**

**12** Estimates in this publication are subject to sampling and non-sampling errors:

- Sampling error is the difference between the published estimate and the value that would have been produced if all dwellings had been included in the survey. For more information see the Technical Note.
- Non-sampling errors are inaccuracies that occur because of imperfections in reporting by respondents and interviewers, and errors made in coding and processing data. These inaccuracies may occur in any enumeration, whether it be a full count or a sample. Every effort is made to reduce the non-sampling error to a minimum by careful design of questionnaires, intensive training and supervision of interviewers, and effective processing procedures.

## SEASONAL FACTORS

**13** The estimates are based on information collected in the survey month and, due to seasonal factors, may not be representative of other months of the year.

## CLASSIFICATIONS USED

**14** Country of birth data are classified according to the Standard Australian Classification of Countries (SACC), 2008 (cat. no. 1269.0).

**15** Educational attainment data are classified according to Australian Standard Classification of Education (ASCED) (cat. no. 1272.0).

## COMPARABILITY OF TIME SERIES

**16** In this publication there is a substantial increase in the number of part-time workers who preferred more hours and underemployed workers. This was due to a change in the question being asked of part-time workers. From September 2008, part-time workers are asked "Would you prefer to work more hours than you usually work?". In previous surveys part-time workers were asked "Would you prefer a job in which you worked more hours a week?". The new question has been altered to be consistent with the LFS and is broader and more inclusive of peoples situations as it relates to a preference for more hours of work.

**17** This change has contributed to an additional 115,800 people who were classified as part-time workers who preferred more hours and an additional 131,500 people who were classified as underemployed workers in 2008. Users need to exercise care when comparing the number of part-time workers who preferred more hours and underemployed workers in this publication with previous releases because of this break in series.

**18** From July 2004, a change has been made to the category 'considered too young or too old by employers' for the items 'all difficulties in finding work with more hours' and 'main difficulty in finding work with more hours'. The category has been split into 'considered too young by employers' and 'considered too old by employers'.

**19** Revisions are made to population benchmarks for the LFS after each five-yearly Census of Population and Housing. The last such revision was made in February 2004 to take account of the results of the 2001 Census of Population and Housing. Estimates from supplementary surveys conducted from and including February 2004 are based on the revised population benchmarks.

**20** Prior to September 1994, part-time workers who would prefer more hours of work were asked whether they were available to start work with more hours within the subsequent four weeks. From September 1994, an additional question was added to also determine their availability to start work with more hours during the reference week. This question was added to the survey so that estimates of underemployment could be more easily aligned with the then current International Labour Organisation (ILO) recommendations on underemployment.

**21** As part of the 2001 LFS questionnaire redesign, people who were on short-term unpaid leave initiated by the employer, are now classified as employed. This approach is consistent with ILO recommendations on formal job attachment. Analysis of data from the LFS shows that many of these people usually worked part time, and that a number of these had a preference to work more hours. However, overall, these people contribute only marginally to

the change in part-time workers who would prefer more hours.

## COMPARABILITY WITH MONTHLY LFS STATISTICS

**22** Due to differences in the scope and sample size of this supplementary survey and that of the monthly LFS, the estimation procedure may lead to some small variations between labour force estimates from this survey and those from the monthly LFS.

## COMPARABILITY WITH ILO GUIDELINES

**23** The ABS definition of underemployment is consistent with the International Labour Organisation (ILO) guidelines of time-related underemployment adopted in 1998. According to these guidelines, time-related underemployment exists when the hours of work of an employed person are below a threshold, and are insufficient in relation to an alternative employment situation in which the person is willing and available to engage. More specifically, people in time-related underemployment comprise all employed people (as defined) who satisfy the following three criteria:

- willingness to work additional hours - want to work more hours than they currently work. The ILO recommends that those who have actively sought to work additional hours should be distinguished from those who have not
- availability to work additional hours, within a specified period
- worked less than a threshold (determined according to national circumstances) relating to working time - the ABS underemployment framework uses a threshold (35 hours in the reference week) based on the boundary between full-time and part-time work.

**24** A more detailed discussion is included in Labour Statistics: Concepts, Sources and Methods (cat. no. 6102.0.55.001), Chapter 5.

## PREVIOUS SURVEYS

**25** The Underemployed Workers Survey was conducted in May 1985, 1988 and 1991. In 1994, the survey became an annual survey, collected each September. Results of previous surveys were published in: Underemployed Workers, Australia (cat. no. 6265.0); and the standard data service Underemployed Workers, Australia (cat. no. 6265.0.40.001) for 1994 and 1995.

## NEXT SURVEY

**26** The ABS plans to conduct this survey again in September 2009.

## ACKNOWLEDGMENT

**27** The ABS draws extensively on information provided freely by individuals, businesses, governments and other organisations. Their continued cooperation is very much appreciated: without it, the wide range of statistics published by the ABS would not be available. Information received by the ABS is treated in strict confidence as required by the **Census and Statistics Act 1905**.

## RELATED PUBLICATIONS

28 ABS publications which may be of interest include:

- [Australian Labour Market Statistics](#) (cat. no. 6105.0)
- [Barriers and Incentives to Labour Force Participation](#) (cat. no. 6239.0)
- [Job Search Experience, Australia](#) (cat. no. 6222.0)
- [Labour Force, Australia](#) (cat. no. 6202.0)
- [Labour Force Experience, Australia](#) (cat. no. 6206.0)
- [Labour Mobility, Australia](#) (cat. no. 6209.0)
- [Labour Statistics: Concepts, Sources and Methods](#) (cat. no. 6102.0.55.001)
- [Persons Not in the Labour Force, Australia](#) (cat. no. 6220.0)
- [Working Time Arrangements, Australia](#) (cat. no. 6342.0)

29 Current publications and other products released by the ABS are available from the Statistics Page on the ABS website. The ABS also issues a daily Release Advice on the web site which details products to be released in the week ahead.

## Glossary

### GLOSSARY

#### **Available to start work**

Refers to people who were available to start work with more hours either in the reference week, or in the four weeks subsequent to the interview.

#### **Contributing family worker**

People who work without pay in an economic enterprise operated by a relative.

#### **Duration of current period of insufficient work**

For full-time workers who worked less than 35 hours in the reference week due to economic reasons, refers to the number of weeks they have been working less than 35 hours a week.

For part-time workers who would prefer to work more hours, refers to the number of weeks they have been wanting to work more hours.

As periods of insufficient work are recorded in full weeks and rounded down, this results in a slight understatement of duration.

#### **Economic reasons**

Economic reasons for full-time workers having worked less than 35 hours in the reference week are:

- there was no work or not enough work available, e.g. due to material shortages

- they were stood down
- they were on short time.

## **Employed**

People aged 15 years and over who, during the reference week:

- worked for one hour or more for pay, profit, commission or payment in kind, in a job or business or on a farm (comprising employees, employers and own account workers); or
- worked for one hour or more without pay in a family business or on a farm (i.e. contributing family workers); or
- were employees who had a job but were not at work and were:
  - away from work for less than four weeks up to the end of the reference week; or
  - away from work for more than four weeks up to the end of the reference week and received pay for some or all of the four-week period to the end of the reference week; or
  - away from work as a standard work or shift arrangement; or
  - on strike or locked out; or
  - on workers' compensation and expected to return to their job; or
- were employers or own account workers who had a job, business or farm, but were not at work.

## **Employees**

People who:

- worked for a public or private employer; and
- received remuneration in wages, salary, or are paid a retainer fee by their employer and worked on a commission basis, or for tips or piece-rates or payment in kind; or
- operated their own incorporated enterprise with or without hiring employees.

## **Employers**

People who operate his or her own unincorporated economic enterprise or engage independently in a profession or trade, and hires one or more employees.

## **Full-time workers**

Employed people who usually worked 35 hours or more a week (in all jobs) or others who, although usually worked less than 35 hours a week, worked 35 hours or more during the reference week.

## **Fully employed workers**

Employed people who:

- worked full time during the reference week (including people who usually work part time but worked full time in the reference week); or
- usually work full time but worked less than 35 hours in the reference week for non-economic reasons (such as illness or injury, leave holiday or flextime, or personal

- reasons); or
- part-time workers who would not prefer to work additional hours.

### **Interstate**

Refers to whether people were prepared to move to another state or territory if offered a suitable job.

### **Intrastate**

Refers to whether people were prepared to move to another part of their state or territory if offered a suitable job.

### **Level of highest educational attainment**

Level of highest educational attainment identifies the highest achievement a person has attained in any area of study. It is not a measurement of the relative importance of different fields of study but a ranking of qualifications and other educational attainments regardless of the particular area of study or the type of institution in which the study was undertaken.

Years 12, 11 and 10 include people who are currently undertaking school study (See Appendix 1 for more information).

### **Looking for work with more hours**

Looked for work with more hours at some time during the four weeks up to the end of the reference week.

### **Mean duration of insufficient work**

The mean duration of insufficient work is obtained by dividing the aggregate number of weeks a group has had insufficient work by the number of people in that group.

### **Mean preferred number of extra hours**

The mean preferred number of extra hours is obtained by dividing the total preferred number of extra hours reported by a group by the number of people in that group.

### **Median duration of insufficient work**

The median duration of insufficient work is obtained by dividing underemployed workers into two equal groups, one comprising people whose duration of insufficient work is above the mid point, and the other comprising people whose duration is below it.

### **Non-economic reasons**

Non-economic reasons for full-time workers having worked less than 35 hours in the reference week include:

- holiday, flextime or study leave
- own illness or injury or sick leave
- standard work arrangements, shift work or rostered day(s) off
- on strike, locked out or took part in an industrial dispute
- bad weather or plant breakdown

- began, left or lost job during the reference week
- personal reasons.

### **Not available to start work**

Refers to people who were not available to start work with more hours either in the reference week, or in the four weeks following the interview.

### **Not fully employed**

People who are not fully employed comprise part-time workers who would prefer to work more hours, and full-time workers who worked part-time hours in the reference week for economic reasons.

### **Own account workers**

People who operate his or her own unincorporated economic enterprise or engage independently in a profession or trade, and hires no employees.

### **Part-time workers**

Employed people who usually worked less than 35 hours a week (in all jobs) and either did so during the reference week, or were not at work during the reference week.

### **Preferred number of extra hours**

The number of extra hours a week an underemployed worker would have preferred to work.

### **Preferred total number of hours**

The total number of hours per week an underemployed worker would prefer to work.

### **Reference week**

The week preceding the week in which the interview was conducted.

### **Status in employment**

Employed people classified by whether they were employees, employers, own account workers, or contributing family workers.

### **Suitable job**

Job with the preferred number of hours.

### **Underemployed workers**

Underemployed workers are employed people who would prefer, and are available for, more hours of work than they currently have. They comprise:

- part-time workers who would prefer to work more hours and were available to start work with more hours, either in the reference week or in the four weeks subsequent to the survey
- full-time workers who worked part-time hours in the reference week for economic

reasons (such as being stood down or insufficient work being available). It is assumed that these people would prefer to work full time in the reference week and would have been available to do so.

### **Underemployment rate**

The number of underemployed workers expressed as a percentage of the labour force.

### **Usual number of hours**

The number of hours usually worked in a week.

## **Abbreviations**

### **ABBREVIATIONS**

The following symbols and abbreviations are used in this publication:

'000	thousand
ABS	Australian Bureau of Statistics
ASCED	Australian Standard Classification of Education
ILO	International Labour Organization
LFS	Labour Force Survey
n.f.d.	not further defined
OMIE	owner manager of incorporated enterprise
RSE	relative standard error
SACC	Standard Australian Classification of Countries
SE	standard error

## **EDUCATIONAL ATTAINMENT (Appendix)**

### **APPENDIX 1 EDUCATIONAL ATTAINMENT**

#### **CLASSIFICATION OF EDUCATION**

In 2001, the ABS Classification of Qualifications (ABSCQ) (cat. no. 1262.0) was replaced by the Australian Standard Classification of Education (ASCED) (cat. no. 1272.0). The ASCED is a national standard classification which can be applied to all sectors of the Australian education system including schools, vocational education and training and higher education. ASCED replaces a number of classifications previously used in administrative and statistical systems, including the ABSCQ. The ASCED comprises two classifications: Level of Education and Field of Education.

Level of Highest Educational Attainment can be derived from information on Highest Year of

School Completed and Level of Highest Non-school Qualification. The derivation process determines which of the 'non-school' or 'school' attainments will be regarded as the highest. Usually the higher ranking attainment will be self-evident, but in some cases some Secondary Education is regarded, for the purposes of obtaining a single measure, as higher than some Certificate level attainments.

The following decision table is used to determine which of the responses to questions on Highest Year of School Completed (coded to ASCED Broad Level 6) and Level of Highest Non-school Qualification (coded to ASCED Broad Level 5) will be regarded as the highest. It is emphasised that this table was designed for the purpose of obtaining a single value for the output variable Level of Highest Educational Attainment and is not intended to convey any other ordinality.

Decision Table: Level of Highest Educational Attainment							
ASCED LEVEL OF EDUCATION CODES	Certificate n.f.d. (500)	Certificate III or IV n.f.d. (510)	Certificate IV (511)	Certificate III (514)	Certificate I or II n.f.d. (520)	Certificate II (521)	Certificate I (524)
Secondary Education n.f.d. (600)	Certificate n.f.d.	Certificate III or IV n.f.d.	Certificate IV	Certificate III	Certificate I or II n.f.d.	Certificate II	Certificate I
Senior Secondary Education n.f.d. (610)	Senior Secondary n.f.d.	Certificate III or IV n.f.d.	Certificate IV	Certificate III	Senior Secondary n.f.d.	Senior Secondary n.f.d.	Senior Secondary n.f.d.
Year 12 (611)	Year 12	Certificate III or IV n.f.d.	Certificate IV	Certificate III	Year 12	Year 12	Year 12
Year 11 (613)	Year 11	Certificate III or IV n.f.d.	Certificate IV	Certificate III	Year 11	Year 11	Year 11
Junior Secondary Education n.f.d. (620)	Certificate n.f.d.	Certificate III or IV n.f.d.	Certificate IV	Certificate III	Certificate I or II n.f.d.	Certificate II	Certificate I
Year 10 (621)	Year 10	Certificate III or IV n.f.d.	Certificate IV	Certificate III	Year 10	Certificate II	Year 10
Year 9 (622)	Certificate n.f.d.	Certificate III or IV n.f.d.	Certificate IV	Certificate III	Certificate I or II n.f.d.	Certificate II	Certificate I
Year 8 (623)	Certificate n.f.d.	Certificate III or IV n.f.d.	Certificate IV	Certificate III	Certificate I or II n.f.d.	Certificate II	Certificate I
Year 7 (624)	Certificate n.f.d.	Certificate III or IV n.f.d.	Certificate IV	Certificate III	Certificate I or II n.f.d.	Certificate II	Certificate I

The decision table is also used to rank the information provided in a survey about the qualifications and attainments of a single individual. It does not represent any basis for comparison between differing qualifications. For example, a person whose Highest Year of School Completed was Year 12, and whose Level of Highest Non-school Qualification was a Certificate III, would have those responses crosschecked on the decision table and would as a result have their Level of Highest Educational Attainment output as Certificate III. However, if the same person answered 'Certificate' to the highest non-school qualification question, without offering any further detail, it would be crosschecked against Year 12 on the decision table as 'Certificate not further defined'. The output would then be 'Year 12'. The decision table, therefore, does not necessarily imply that one qualification is 'higher' than the other.

## POPULATIONS AND DATA ITEMS LIST (Appendix)

# APPENDIX 2 POPULATIONS AND DATA ITEMS LIST

## DATA AVAILABLE ON REQUEST

The ABS has a range of data available on request from the Underemployed Workers Survey. This section lists the data items and populations which relate to the survey. More detailed breakdowns of some data items may also be available on request.

The population(s) for a particular data item refers to the person in the survey to whom the data item relates.

For more information about ABS data available on request, contact Labour Market Statistics on Canberra (02) 6252 7206, or by facsimile on (02) 6252 7102, or by email to <labour.statistics@abs.gov.au>.

### Population 1:

Employed persons.

### Population 2:

Full-time workers.

### Population 3:

Part-time workers.

### Population 4:

Part-time workers who would prefer more hours.

### Population 5:

Part-time workers who would prefer more hours who had been looking for work with more hours or were available to start work with more hours in the reference week or within four weeks.

### Population 6:

Underemployed part-time workers.

### Population 7:

Underemployed workers.

Data items	Populations

1	State or territory of usual residence	All
	New South Wales	
	Victoria	
	Queensland	
	South Australia	
	Western Australia	
	Tasmania	
	Northern Territory	
	Australian Capital Territory	
2	Area of usual residence	All
	State capital city	
	Balance of state/territory	
3	Region of usual residence	All
	Standard labour force dissemination regions	
4	Sex	All
	Males	
	Females	
5	Marital status	All
	Married	
	Not married	
6	Relationship in household	All
	Family member	
	Husband, wife or partner	
	With dependants	
	Without dependants	
	Lone parent	
	With dependants	
	Without dependants	
	Dependent student	
	Non-dependent child	
	Other family person	
	Non-family member	
	Lone person	
	Not living alone	
	Relationship not determined	
7A	Country of birth and period of arrival	All
	Born in Australia	
	Born overseas	
	Arrived before 1971	
	Arrived 1971-1980	
	Arrived 1981-1990	
	Arrived 1991-2000	
	Arrived 2001 to survey date	
7B	Country of birth (1)	All
	Born in Australia	
	Born overseas	
	Born in main English-speaking countries	
	Born in other than main English-speaking countries	
7C	Country of birth (2)	All
	Born in Australia	
	Born overseas	
	Oceania and Antarctica	
	North-West Europe	
	Southern and Eastern Europe	
	North Africa and the Middle East	
	South-East Asia	
	North-East Asia	
	Southern and Central Asia	
	Americas	
	Sub-Saharan Africa	
8	Age group (years)	All
	15-19	
	20-24	
	25-34	

35-44	
45-54	
55-59	
60-64	
65-69	
70 and over	
Note: Age collected in single years	
9A Underemployment status	7
Worked less than 35 hours in the reference week for economic reasons	
Part-time workers who would prefer more hours who were available to start work with more hours in the reference week or within four weeks	
Looking and available to start	
Not looking but available to start	
9B Whether looking and/or available	4-6
Had been looking for work with more hours	
Looking and available to start	
Looking and available in the reference week	
Looking and not available in the reference week but available within four weeks	
Looking and not available to start	
Had not been looking for work with more hours	
Not looking but available to start	
Not looking but available in the reference week	
Not looking and not available in the reference week but available within four weeks	
Not looking and not available to start	
9C Whether available and/or looking	4-6
Available to start work with more hours	
Available in the reference week	
Looking	
Not looking	
Available within four weeks (but not in the reference week)	
Looking	
Not looking	
Not available to start work with more hours	
Looking	
Not looking	
10 Full-time or part-time status	All
Employed persons	
Full-time workers	
Worked 35 hours or more in the reference week	
Worked less than 35 hours in the reference week	
For non-economic reasons	
For economic reasons	
Part-time workers	
Would not prefer to work more hours	
Would prefer to work more hours	
Prefers more part-time hours	
Prefers full-time hours	
11 Whether fully employed	All
Fully employed	
Part-time workers who would prefer more hours and persons who worked less than 35 hours in the reference week for economic reasons	
12 Status in employment	All
Employees	
Employers	
Own account workers	
Contributing family workers	
13 Number of hours worked in the reference week	4-7
0-5	
6-10	
11-15	
16-20	
20-29	
30-34	

35 or more	
Note: Hours worked collected in single hours	
14 Type of insufficient work	4-6
Full-time	
Part-time	
15 Duration of current period of insufficient work	4-7
1 week and under 4 weeks	
4 weeks and under 13 weeks	
13 weeks and under 52 weeks	
52 weeks and over	
Note: Period of insufficient work collected in single weeks	
16 Level of highest educational attainment	4-7
Postgraduate Degree	
Graduate Diploma/Graduate Certificate	
Bachelor Degree	
Advanced Diploma/Diploma	
Certificate III/IV	
Certificate I/II	
Certificate not further defined	
Year 12	
Year 11	
Year 10 or below	
Other education	
Level not determined	
No educational attainment	
17 Whether would move interstate if offered a suitable job	4-7
Would move interstate	
Would not move interstate	
Might move interstate	
Did not know	
18 Whether would move intrastate if offered a suitable job	4-7
Would move intrastate	
Would not move intrastate	
Might move intrastate	
Did not know	
19 Whether would prefer to change occupation to work more hours	4-7
Would prefer to change occupation	
Would prefer not to change occupation	
No preference	
20 Whether would prefer to change employer to work more hours	4-7
Would prefer to change employer	
Would prefer not to change employer	
No preference	
21 All steps taken to find work with more hours in the last four weeks	4-6
Asked current employer for more work	
Contacted prospective employers	
Registered with Centrelink	
Checked Centrelink touchscreens	
Checked factory noticeboards	
Contacted an employment agency	
Looked in newspapers	
Searched Internet sites	
Answered a newspaper advertisement for a job	
Advertised or tendered for work	
Contacted friends or relatives	
Other steps taken to find work	
Had not been looking for work with more hours	
22 Whether registered with Centrelink	4-6
Registered with Centrelink for job search assistance	
Not registered with Centrelink for job search assistance	
Had not been looking for work with more hours	
23 Preferred number of extra hours	4-6
Less than 10 hours	
10-19	

20-29		
30 or more		
Note: Preferred extra hours collected in single hours		
24 Main difficulty in finding work with more hours		4-6
Had been looking for work with more hours		
Own ill health or disability		
Considered too young by employers		
Considered too old by employers		
Unsuitable hours		
Too far to travel/transport problems		
Lacked necessary skills or education		
Language difficulties		
Insufficient work experience		
No vacancies in line of work		
Too many applicants for available jobs		
No vacancies at all		
Difficulties with ethnic background		
Difficulties in finding child care		
Other family responsibilities		
Other difficulties		
No difficulties reported		
Had not been looking for work with more hours		
25 Hours usually worked		4-6
1-5		
6-10		
11-15		
16-20		
21-29		
30-34		
Note: Hours usually worked collected in single hours		
26 Preferred total number of hours		4-6
Less than 30 hours		
30-34		
35-39		
40 or more		
Note: Preferred total hours collected in single hours		
27 Employment type		All
Employees (excluding OMIEs)		
Owner managers of incorporated enterprises		
Owner managers of unincorporated enterprises		
Contributing family workers		

## SUPPLEMENTARY SURVEYS (Appendix)

### APPENDIX 3 SUPPLEMENTARY SURVEYS

#### SUPPLEMENTARY SURVEYS

The Monthly Population Survey program collects data on particular aspects of the labour force. The following is an historical list of supplementary surveys to the monthly labour force surveys. Data from these surveys are available on request and can be obtained by contacting the ABS.

cat. no. Frequency Latest issue

## Monthly Population Supplementary Surveys

Child Care, Australia	4402.0	Irregular	June 2005
Child Employment, Australia	6211.0	Irregular	June 2006
Education and Work, Australia	6227.0	Annual	May 2008
Employee Earnings, Benefits, and Trade Union Membership, Australia	6310.0	Annual	August 2007
Forms of Employment, Australia	6359.0	Annual	November 2007
Job Search Experience, Australia	6222.0	Annual	July 2008
Labour Force Experience, Australia	6206.0	Biennial	February 2007
Labour Force Status and Other Characteristics of Migrants, Australia	6250.0	Irregular	November 2007
Labour Mobility, Australia	6209.0	Biennial	February 2008
Locations of Work, Australia	6275.0	Irregular	November 2005
Multiple Jobholding, Australia(a)	6216.0	Irregular	August 1997
Persons Not in the Labour Force, Australia	6220.0	Annual	September 2007
Underemployed Workers, Australia	6265.0	Annual	September 2008
Working Time Arrangements, Australia(b)	6342.0	Irregular	November 2006
Multi-Purpose Household Surveys			
Barriers and Incentives to Labour Force Participation, Australia	6239.0	Biennial	2006-2007
Retirement and Retirement Intentions, Australia	6238.0	Biennial	2006-2007
Work-Related Injuries, Australia	6324.0	Irregular	2005-2006

(a) Latest data available on request July 2001.

(b) This product replaces the publication Working Arrangements, Australia (cat. no. 6342.0).

## Quality Declaration - Summary

### QUALITY DECLARATION - SUMMARY

#### INSTITUTIONAL ENVIRONMENT

For information on the institutional environment of the Australian Bureau of Statistics (ABS), including the legislative obligations of the ABS, financing and governance arrangements, and mechanisms for scrutiny of ABS operations, please see ABS Institutional Environment.

#### RELEVANCE

Underemployed workers are employed people who would prefer, and are available for, more hours of work than they currently have. They comprise:

- part-time workers who would prefer to work more hours and were available to start work with more hours, either in the reference week or in the four weeks subsequent to the survey
- full-time workers who worked part-time hours in the reference week for economic reasons (such as being stood down or insufficient work available). It is assumed that these people would prefer to work full-time in the reference week and would have been available to do so.

The number of underemployed workers contribute to measures of underutilised labour resources.

The Underemployed Workers Survey collects a range of information about underemployed workers, including the number of hours usually worked, number of preferred hours, steps taken to find work with more hours, and difficulties in finding work with more hours.

The Underemployed Workers Survey is conducted annually during September as a supplement to the monthly Labour Force Survey. The main product from the survey is the publication, **Underemployed Workers, Australia** (cat. no. 6265.0).

## TIMELINESS

The publication is released approximately six months after the completion of enumeration in September. The Underemployed Workers Survey is expected to be conducted again in September 2009.

## ACCURACY

Estimates from the Underemployed Workers Survey, including those presented in the publication, are subject to sampling and non-sampling errors.

The Underemployed Workers Survey was designed primarily to provide estimates at the Australia level. Broad estimates are available for State or territory of usual residence and State capital city/Balance of state/territory, though users should exercise caution when using estimates at this level because of the presence of high sampling errors.

From September 2008, there has been a reduction in the LFS sample size when compared to September 2007. This is due to an 11% sample reduction that was implemented from November 2007 to June 2008 based on the 2006 sample design, and an additional 24% sample reduction implemented in July 2008. Detailed information about the sample reduction is provided in **Information Paper: Labour Force Survey Sample Design, Nov 2007 (Second edition)** (cat. no. 6269.0).

## COHERENCE

The Underemployed Workers Survey is one source of ABS data source on underemployment. Summary information is also collected in the Labour Force Survey on a quarterly basis.

The conceptual framework used for this survey is described in Chapter 5 of **Labour Statistics: Concepts, Sources and Methods** (cat. no. 6102.0.55.001). The statistics in this survey are comparable with other labour statistics produced by the ABS. The ABS definition of underemployment is consistent with the International Labour Organisation definition of time-related underemployment adopted in 1998.

The ABS has been conducting the Underemployed Workers Survey irregularly since 1985, and annually since 1994. Key changes made to the Underemployed Workers Survey since 1994 include:

- In 2008, changes to questions being asked of part-time workers were made to align with the Labour Force Survey. This has caused a break in series of part-time workers who preferred more hours and underemployed workers.
- Revisions were made to population benchmarks for the Labour Force Survey and supplementary surveys in 2004 to take account of the 2001 Census of Population and Housing. Estimates from supplementary surveys conducted from and including February 2004 are based on the revised benchmarks.
- Changes to improve alignment with recommendations from the International Labour

Organisation (ILO) were made in 1994 for underemployment and in 2001 for formal job attachment.

For more information on changes to the survey see Chapter 21.14 of **Labour Statistics: Concepts, Sources and Methods** (cat. no. 6102.0.55.001).

## INTERPRETABILITY

The Underemployed Workers publication contains tables with footnoted data and a Summary of Findings to aid interpretation of the results of the survey. Detailed Explanatory Notes, a Technical Note and a Glossary are also included providing information on the terminology, classifications and other technical aspects associated with these statistics.

Further commentary is often available through articles and data published in other ABS products, including:

- **Australian Labour Market Statistics** (cat. no. 6105.0) - refer to Appendix 2 for past articles.
- **Australian Social Trends** (cat. no. 4102.0) - refer to the Cumulative list of articles for past articles
- **Year Book, Australia** (cat. no. 1301.0) - refer to the 'Work' chapter.

## ACCESSIBILITY

**Underemployed Workers, Australia** (cat. no. 6265.0), released electronically via the ABS website as a PDF publication. Additional data may be available on request (subject to data quality). For a list of data items available see Appendix 2 of the publication. Note that detailed data can be subject to high relative standard errors, and in some cases, may result in data being confidentialised.

Labour underutilisation measures are published annually in the April issue of **Australian Labour Market Statistics** (cat. no. 6105.0), in **Measures of Australia's Progress: Summary Indicators (Edition 2)** (cat. no. 1383.0.55.001) and have been presented in **Underemployed Workers, Australia** (cat. no. 6265.0) since 2006.

For further information about these or related statistics, contact the National Information and Referral Centre on 1300 135 070 or the Labour Market Section in Canberra on (02) 6252 7206.

## Quality Declaration - Relevance

### EMPLOYED

People aged 15 years and over who, during the reference week:

- worked for one hour or more for pay, profit, commission or payment in kind, in a job or business or on a farm (comprising employees, employers and own account workers); or
- worked for one hour or more without pay in a family business or on a farm (i.e. contributing family workers); or

- were employees who had a job but were not at work and were:
  - away from work for less than four weeks up to the end of the reference week; or
  - away from work for more than four weeks up to the end of the reference week and received pay for some or all of the four-week period to the end of the reference week; or
  - away from work as a standard work or shift arrangement; or
  - on strike or locked out; or
  - on workers' compensation and expected to return to their job; or
- were employers or own account workers who had a job, business or farm, but were not at work.

## **FULL-TIME WORKERS**

Employed people who usually worked 35 hours or more a week (in all jobs) or others who, although usually worked less than 35 hours a week, worked 35 hours or more during the reference week.

## **PART-TIME WORKERS**

Employed people who usually worked less than 35 hours a week (in all jobs) and either did so during the reference week, or were not at work during the reference week.

# **DATA QUALITY (Technical Note)**

## **TECHNICAL NOTE DATA QUALITY**

### **INTRODUCTION**

**1** Estimates in this publication are based on information obtained from occupants of a sample of dwellings, and are subject to sampling variability. That is, they may differ from those estimates that would have been produced if all dwellings had been included in the survey. One measure of the likely difference is given by the standard error (SE), which indicates the extent to which an estimate might have varied by chance because only a sample of dwellings was included. There are about two chances in three (67%) that a sample estimate will differ by less than one SE from the number that would have been obtained if all dwellings had been included, and about 19 chances in 20 (95%) that the difference will be less than two SEs. Another measure of the likely difference is the relative standard error (RSE), which is obtained by expressing the SE as a percentage of the estimate.

**2** Due to space limitations, it is impractical to print the SE of each estimate in the publication. Instead, a table of SEs is provided to determine the SE for an estimate from the size of that estimate (see table T1). The SE table is derived from a mathematical model, referred to as the 'SE model', which is created using data from a number of past Labour Force Surveys. It should be noted that the SE model only gives an approximate value for the SE for any particular estimate, since there is some minor variation between SEs for different estimates of the same size.

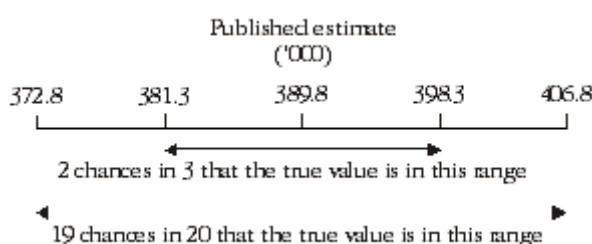
**3** The LFS sample size in September 2008 was approximately one-third smaller than the sample size in September 2007. This is due to an 11% sample reduction that was implemented from November 2007 to June 2008 based on the 2006 sample design, and an additional 24% sample reduction implemented in July 2008. In combination, the two sample reductions are expected to increase the standard errors for estimates from the supplementary surveys by approximately 22% at the broad aggregate level, relative to the 2001 sample design (standard errors will vary at lower aggregate levels). Detailed information about the sample reduction is provided in Information Paper: Labour Force Survey Sample Design, Nov 2007 (Second edition) (cat. no. 6269.0).

## CALCULATION OF STANDARD ERROR

**4** An example of the calculation and the use of SEs in relation to estimates of persons is as follows. Table 5 shows the estimated number of female underemployed part-time workers was 389,800. Since this estimate is between 300,000 and 500,000, table T1 shows that the SE for Australia will lie between 7,600 and 9,550 and can be approximated by interpolation using the following general formula:

$$\begin{aligned}
 & SE \text{ of estimate} \\
 &= \text{lower SE} + \left( \left( \frac{\text{size of estimate} - \text{lower estimate}}{\text{upper estimate} - \text{lower estimate}} \right) \times (\text{upper SE} - \text{lower SE}) \right) \\
 &= 7,600 + \left( \left( \frac{389,800 - 300,000}{500,000 - 300,000} \right) \times (9,550 - 7,600) \right) \\
 &= 8,500 \text{ (rounded to the nearest 100)}
 \end{aligned}$$

**5** Therefore, there are about two chances in three that the value that would have been produced if all dwellings had been included in the survey will fall within the range 381,300 to 398,300 and about 19 chances in 20 that the value will fall within the range 372,800 to 406,800. This example is illustrated in the following diagram.



**6** In general, the size of the SE increases as the size of the estimate increases. Conversely, the RSE decreases as the size of the estimate increases. Very small estimates are thus subject to such high RSEs that their value for most practical purposes is unreliable. In the tables in this publication, only estimates with RSEs of 25% or less are considered reliable for most purposes. Estimates with RSEs greater than 25% but less than or equal to 50% are preceded by an asterisk (e.g.\*3.2) to indicate they are subject to high SEs and should be used with caution. Estimates with RSEs of greater than 50%, preceded by a double asterisk (e.g.\*\*0.3), are considered too unreliable for general use and should only be used to aggregate with other estimates to provide derived estimates with RSEs of less than 25%.

## MEANS AND MEDIANS

**7** The RSEs of estimates of mean duration of insufficient work, median duration of insufficient work and mean preferred number of extra hours are obtained by first finding the

RSE of the estimate of the total number of persons contributing to the mean or median (see table T1) and then multiplying the resulting number by the following factors:

- mean duration of insufficient work: 1.6
- median duration of insufficient work: 2.5
- mean preferred number of extra hours: 0.7

**8** The following is an example of the calculation of SEs where the use of a factor is required. Table 4 shows that the estimated number of male underemployed part-time workers was 213,900 with a median duration of insufficient work of 26 weeks. The SE of 213,900 can be calculated from table T1 (by interpolation) as 6,600. To convert this to an RSE we express the SE as a percentage of the estimate or  $6,600/213,900 = 3.1\%$ .

**9** The RSE of the estimate of median duration of insufficient work is calculated by multiplying this number (3.1%) by the appropriate factor shown in paragraph 7 (in this case 2.5):  $3.1 \times 2.5 = 7.8\%$ . The SE of this estimate of median duration of insufficient work is therefore 7.8% of 26, i.e. about 2 (rounded to the nearest whole week). Therefore, there are two chances in three that the median duration of insufficient work for males that would have been obtained if all dwellings had been included in the survey would have been within the range 24-28 weeks, and about 19 chances in 20 that it would have been within the range 22-30 weeks.

## PROPORTIONS AND PERCENTAGES

**10** Proportions and percentages formed from the ratio of two estimates are also subject to sampling errors. The size of the error depends on the accuracy of both the numerator and the denominator. A formula to approximate the RSE of a proportion is given below. This formula is only valid when x is a subset of y.

$$RSE\left(\frac{x}{y}\right) = \sqrt{[RSE(x)]^2 + [RSE(y)]^2}$$

**11** Considering the example from paragraph 3, of the 389,800 female underemployed part-time workers, 131,100 or 33.6% had insufficient work for 52 weeks and over. The SE of 131,100 may be calculated by interpolation as 5,400. To convert this to an RSE we express the SE as a percentage of the estimate, or  $5,400/131,100 = 4.1\%$ . The SE for 389,800 was calculated previously as 8,500, which converted to an RSE is  $8,500/389,800 = 2.2\%$ . Applying the above formula, the RSE of the proportion is:

$$RSE = \sqrt{(4.1)^2 + (2.2)^2} = 4.5\%$$

**12** Therefore, the SE for the proportion of females who have a current period of insufficient work of 52 weeks or more is 1.2 percentage points  $(= (33.6/100) \times 4.5)$ . Therefore, there are about two chances in three that the proportion of females who have a current period of insufficient work of 52 weeks or more was between 32.4% and 34.8% and 19 chances in 20 that the proportion is within the range 31.2% to 36.0%.

## DIFFERENCES

**13** Published estimates may also be used to calculate the difference between two survey estimates (of numbers or percentages). Such an estimate is subject to sampling error. The sampling error of the difference between two estimates depends on their SEs and the relationship (correlation) between them. An approximate SE of the difference between two

estimates (x-y) may be calculated by the following formula:

$$SE(x-y) = \sqrt{[SE(x)]^2 + [SE(y)]^2}$$

**14** While this formula will only be exact for differences between separate and uncorrelated characteristics or subpopulations, it is expected to provide a good approximation for all differences likely to be of interest in this publication.

## STANDARD ERRORS

### T1 STANDARD ERRORS OF ESTIMATES

Size of Estimate (persons)	NSW no.	Vic. no.	Qld no.	SA no.	WA no.	Tas. no.	NT no.	ACT no.	Aust.	
									SE no.	RSE %
100	340	330	250	200	250	130	90	120	120	120.0
200	450	430	370	270	330	180	140	190	220	110.0
300	540	510	450	320	390	220	170	240	300	100.0
500	660	620	570	390	480	270	220	310	440	88.0
700	760	710	670	450	550	310	260	350	550	78.6
1,000	880	810	780	520	630	360	300	380	700	70.0
1,500	1 030	950	930	600	730	410	350	420	890	59.3
2,000	1 150	1 060	1 040	670	820	450	390	440	1 050	52.5
2,500	1 250	1 150	1 150	750	900	500	400	450	1 200	48.0
3,000	1 350	1 250	1 200	800	950	500	450	500	1 300	43.3
3,500	1 450	1 300	1 300	800	1 000	550	450	500	1 400	40.0
4,000	1 500	1 400	1 350	850	1 050	550	500	550	1 500	37.5
5,000	1 650	1 500	1 450	950	1 150	600	550	600	1 700	34.0
7,000	1 850	1 700	1 650	1 050	1 300	700	650	650	1 950	27.9
10,000	2 150	1 950	1 850	1 200	1 500	800	800	800	2 300	23.0
15,000	2 500	2 250	2 050	1 350	1 700	950	1 150	950	2 650	17.7
20,000	2 750	2 500	2 250	1 500	1 900	1 150	1 450	1 100	2 950	14.8
30,000	3 200	2 900	2 600	1 800	2 150	1 450	2 000	1 450	3 350	11.2
40,000	3 550	3 200	2 850	2 050	2 400	1 700	2 550	1 700	3 650	9.1
50,000	3 850	3 500	3 150	2 300	2 650	1 950	3 050	1 900	3 900	7.8
100,000	4 900	4 550	4 300	3 450	3 900	2 750	5 250	2 550	4 900	4.9
150,000	5 750	5 550	5 300	4 400	5 150	3 300	7 250	2 900	5 700	3.8
200,000	6 600	6 450	6 200	5 200	6 150	3 700	9 050	3 050	6 400	3.2
300,000	8 300	8 300	7 850	6 400	7 750	4 200	12 350	3 200	7 600	2.5
500,000	11 650	11 500	10 600	8 000	9 850	4 850	..	3 200	9 550	1.9
1,000,000	17 300	17 500	15 150	10 200	12 600	5 550	..	..	13 450	1.3
2,000,000	23 300	25 850	20 350	12 100	14 550	..	..	..	19 550	1.0
5,000,000	29 700	41 350	27 450	13 650	15 200	..	..	..	32 600	0.7
10,000,000	31 800	57 000	32 100	..	..	..	..	..	43 500	0.4
15,000,000	..	..	..	..	..	..	..	..	49 100	0.3

.. not applicable